ORAL CANCER BACKGROUND PAPERS

Chapter IX: Health Promotion in Oral Cancer Prevention and Early Detection

Working Draft

Introduction

Each year, oral cancer kills more people in the US than does cervical cancer, malignant melanoma, or Hodgkin's disease.[1] Oral cancers usually involve the tongue, lips, floor of the mouth, soft palate, tonsils, salivary glands, or back of the throat. In the US, more than 90% of oral and pharyngeal cancers occur in individuals over 45 years of age; males are more likely than females to develop them[1,2] (see Chapter I). The primary risk factors for oral cancers in this country are tobacco and alcohol use; for lip cancer, exposure to the sun is most important (see Chapter III).[3-6] Advanced oral cancer and its sequelae cause chronic pain, loss of function, and irreparable, socially disfiguring impairment. The functional, cosmetic, and psychological insults suffered by oral cancer patients often result in social isolation, significantly burdening patients, their families and society.[7]

Of all the procedures available to control oral cancer, none has affected survival as much as has early detection.[3] Unlike other parts of the body, the oral cavity is easily accessible and an oral cancer examination poses relatively little discomfort or embarrassment for the patient. Dentists are the provider of choice to perform oral cancer examinations, but about 40% of the population does not visit a dentist in a given year.[8] Furthermore, those who are middle age or older, edentulous, of lower income status, black or Hispanic—the groups at highest risk for oral cancers—are even less likely to visit a dentist.[9] Thus, other health care providers must assume more responsibility to ensure that the public receives oral cancer examinations on a routine basis. Primary care physicians should know that targeting those at high risk is a viable and cost-effective intervention for oral cancer when performed as part of routine practice.[10-12] Oral cancer examinations also offer providers an opportunity to identify patients who use tobacco and alcohol and counsel them about their risk for cancers.[13]

Oral cancer has one of the lowest 5-year survival rates of all major cancers,[14] probably because most lesions are not diagnosed until they are advanced.[15] However, when detected early, the probability of surviving from oral cancer is remarkably better than for most other cancers.[16] Theoretically, morbidity and mortality due to oral cancers can be reduced dramatically with appropriate interventions; because of this potential, 13 of the objectives in *Healthy People 2000* relate to oral cancer prevention and early detection (Table 1).[17]

To achieve these objectives, health care providers and the public need to know the risk factors for oral cancer, as well as their signs and symptoms. Furthermore, health care providers, particularly dentists, physicians, nurse practitioners, nurses and dental hygienists, need to provide oral cancer examinations routinely and competently. Equally important, members of the public need to know that an examination for oral cancer is available and that they can request one routinely. Thus, both health care providers and the general public need to increase their knowledge and change their behaviors or practices. Health promotion is a key to achieving these changes.

Table 1:
Healthy People 2000 Oral Cancer Objectives[17]

2.2	Reverse the rise in cancer deaths to achieve a rate of no more than 130 per 100,000 people.
2.6	Increase complex carbohydrates and fiber containing foods in the diets of adults to 5 or more daily servings for vegetables (including legumes) and fruits, and to 6 or more daily servings for grain products.
3.4	Reduce cigarette smoking to a prevalence of no more than 15% among people aged 20 and older.
3.5	Reduce the initiation of cigarette smoking by children and youth so that no more than 15% have become regular cigarette smokers by age 20.
3.9	Reduce smokeless tobacco use by males aged 12 through 24 to a prevalence of no more than 4%.
3.16	Increase to at least 75% the proportion of primary care and oral health care providers who routinely advise cessation and provide assistance and followup for all of their tobacco-using patients.
4.6	Reduce the proportion of young people who have used alcohol, marijuana and cocaine in the past month.
4.7	Reduce the proportion of high school seniors and college students engaging in recent occasions of heavy drinking of alcoholic beverages to no more than 28% of high school seniors and 32% of college students.
4.8	Reduce alcohol consumption by people aged 14 and older to an annual average of no more than 2 gallons of ethanol per person.
4.19	Increase to at least 75% the proportion of primary care providers who screen for alcohol and other drug use problems and provide counseling and referral as needed.
13.7	Reduce deaths due to cancer of the oral cavity and pharynx to no more than 10.5 per 100,000 men aged 45 through 74 and 4.1 per 100,000 women aged 45 through 74.
13.14	Increase to at least 70% the proportion of people aged 35 and older using the oral health care system during each year.
16.14	Increase to at least 40% the proportion of people aged 50 and older visiting a primary care provider in the preceding year who have received oral, skin, and digital rectal examinations during one such visit.

It is widely accepted that health promotion influences knowledge and behaviors at all levels of social organization. Health promotion is defined as follows: "Any planned combination of educational, political, regulatory, and organizational supports for actions and conditions of living conducive to the health of individuals, groups, or communities."[18] These actions or behaviors may be those of individuals, groups or communities of policy makers, employers, teachers, or others whose actions influence the determinants of health. This use of the term "promotion" differs from a common usage that is frequently associated only with public relations, advertising, and other marketing activities. Although marketing activities play an important role in health promotion, the term as used here refers to actions intended either to alter a person's environments in a way that will improve health in the absence of individual actions or to enable individuals to take advantage of preventive procedures by removing or mitigating barriers to their use.[19] Education is the essential, common denominator of health promotion. Educating a variety of publics, including consumers, health care providers, legislators and other decision makers is necessary to improve awareness of preventive and early detection methods and procedures, gain their acceptance by these groups, and increase their use.[19,20] Education, alone, however, is insufficient to prevent diseases or conditions;[20] simply having knowledge or information does not mean that appropriate behaviors or actions will follow. Still, knowledge is an important aspect of empowerment—without appropriate knowledge, individuals can

neither make nor be expected to make intelligent decisions about their health.[21]

Among other factors that influence behavior are beliefs, values, and attitudes. These factors influence decisions to consult health care providers about obtaining cancer examinations or to use tobacco and alcohol.[19-20]

A. State of the Science

Knowledge, Opinions, and Practices of Physicians and Dentists

A review of several studies that assessed oral cancer knowledge, opinions, and practices of health care providers suggests that many physicians and dentists do not detect oral lesions in their early stages because of inappropriate attitudes or lack of knowledge.[22-27] For example, physicians in Great Britain believed that dentists were primarily responsible for detecting oral cancer.[28] In the U.S., Crissman et al. found that physicians delayed diagnosis of cancers of the floor of the mouth because they confused them with traumatic, inflammatory, or infectious lesions.[29]

Although practitioners' knowledge, opinions, and practices relative to many types of cancers have been investigated,[30] no US national surveys on oral cancers have been conducted among dentists or physicians. However, a recent pilot survey of physicians' and dentists' knowledge, opinions and practices related to oral cancers found that 34% of dentists and 37% of physicians did not recognize the importance of early detection as a means of reducing morbidity and mortality from these diseases.[31] The survey found that a significantly higher proportion of dentists (73%) than physicians (33%) believed that their oral cancer knowledge was current. Furthermore, physicians who believed they were inadequately trained to provide oral cancer examinations were less likely to provide them.

Physicians, dentists, and other providers have a unique opportunity to detect malignant oral neoplasias while they are asymptomatic. Yet, studies have reported that physicians do not routinely examine their patients to identify early, suspicious oral lesions.[32-37] Prout et al. found that more than 77% of patients first diagnosed with oral cancer at an advanced stage had been under the routine care of a physician within the past 3-24 months.[33] Elwood et al. reported that 94% of patients with advanced oral cancer had been seen by a physician within 1 year of their diagnosis.[32] Finally, Lynch and Prout found that only 3% of internal medicine residents documented that they completed an oral cancer screening examination of their patients at high risk for oral cancer.[36]

Studies reporting that physicians are more likely to refer head and neck cancer at an advanced stage than dentists[34,35] suggest that physicians are relatively less aware of signs and symptoms of oral cancer and, as a result, are not fulfilling their responsibilities for early detection.[38-41] When asked about barriers to completing cancer screenings in general (in surveys that did not mention oral cancer),

physicians have reported a treatment-based orientation, time constraints, lack of financial reimbursement, poor patient compliance, and lack of immediate results.[39,42,43]

Dentists also have been found to be remiss in early diagnosis and referral for oral cancers. [24,28,44,45] Schnetler found dentists to be less adept at diagnosis and early referral than physicians.[24] Maguire et al. reported that only 14% of dentists performed all aspects of an intra-oral examination.[28] In an older report from Scotland, Pogrel noted that dentists missed approximately twice as many asymptomatic oral cancer cases as they found.[44] And in 1964, Coffin reported that dentists failed to recognize oral cancer in 69% of the cases presented to them.[45] Still another study, which focused on both dentists and physicians, found that 15% of their patients experienced either significant mismanagement or delayed diagnosis of oral cancer.[25]

Recent studies report that clinicians frequently either do not assess or are unaware of their patients' high-risk behaviors. For example, Maguire et al. reported that 64% of dentists were unaware of their patients' tobacco habits and 40% did not know their alcohol habits.[28] Dolan et al. reported that only 35% of 1,746 randomly selected US dentists asked all or nearly all of their patients whether they smoked. Even fewer dentists (15%) asked about use of smokeless tobacco.[46]

Knowledge, Opinions, and Practices of US Adults

Only a few studies have assessed the US public's knowledge, opinions, and practices relative to oral cancer. The 1990 National Health Interview Survey (NHIS), Health Promotion and Disease Prevention Supplement (HPDP) included four questions about oral cancers.[47] Findings from this study indicate that US adults are not well informed about the signs of oral cancers. There was a great lack of information (or misinformation) regardless of age, race, or ethnicity. Forty-four percent of adults did not know any signs of oral cancer; another 25% correctly identified only one. Just 13% answered correctly that regular alcohol drinking increases one's risk of oral cancer. Although two-thirds identified tobacco use as a risk factor for oral cancer, more people correctly identified smoking as a risk factor for heart disease, emphysema, or lung cancer than for oral cancer. Similarly, few knew that heavy drinking is a risk factor for throat and mouth cancer, although 83% knew that it definitely increases one's chance of getting cirrhosis of the liver.

The 1992 National Center for Health Statistics (NCHS) Cancer Supplement Survey also looked at oral cancer and found that only 14% of the public had ever been examined for the disease.[48] The question of interest actually described the oral cancer screening examination: "in which the doctor or dentist pulls on your tongue, sometimes with gauze wrapped around it, and feels under the tongue and inside the cheeks." Given this description and the nature of the examination, it is unlikely that many patients answered the question incorrectly. Groups least likely to have been examined were: African-Americans or Hispanics; those with low levels of education; persons 65 years of age or older; current users of tobacco products;[48] and respondents with a low level of knowledge about risk factors

for oral cancer.[49] Of individuals receiving an oral cancer examination, 67% received it from a dentist and 24% from a physician.[48]

The 1992 survey generally corroborated the 1990 findings; both, for example, found that the overall level of knowledge about risk factors for oral cancers was low and that a higher level of knowledge of risk factors for oral cancer was associated with a report of having had an oral cancer examination. The latter finding is consistent with results from surveys about cervical, breast, and colorectal cancer.[50-53]

Oral cancer questions also were part of a recent pilot study about oral health among 700 adults.[54] Again, a significant percentage of respondents did not correctly identify oral cancer risk factors. When asked, "which of the following are early warning signs of mouth or lip cancer," only 63% correctly identified "a white or red patch in the mouth that does not go away;" 20% responded "don't know/ not sure" on this question. Only 49% indicated that regular use of both alcohol and tobacco were risk factors; 29% incorrectly responded that having a relative who has had mouth or lip cancer was a risk factor.

Eighty-six percent recognized that regular use of chewing tobacco or snuff can increase the risk of oral cancer. However, 38% of the respondents in this survey were young adults and may have been exposed to anti-tobacco use education. (Of the few educational efforts targeting oral cancer, the majority have been directed to youths and young adults on the use of snuff or chewing tobacco.)

B. Emerging Trends

Over the last two decades, interest in health promotion and disease prevention has increased significantly. At least three factors are responsible for this trend: First, ever-increasing expenditures for health care, most of which pay for the treatment of diseases or conditions, have taken an ever larger proportion of the US gross national product. Second, a growing body of data has confirmed that many chronic diseases result from lifestyle factors that, theoretically, could be changed. Third, and very important, a body of scientific literature in health education and promotion has accumulated. Today, health promotion is recognized as a viable approach to preventing diseases and disorders and promoting health.

A variety of educational campaigns have been mounted to urge people not to start using tobacco products or to stop if they have already started. Today, school-based interventions frequently begin in primary grades; they may focus on developing self-esteem, on building skills to resist peer pressure, or on urging children to remain smoke-free. These efforts are often implemented in conjunction with other community-based activities aimed at preventing children and youth from starting the habit and urging users to stop.[55] Unfortunately, these programs often do not identify tobacco products as risk

factors for oral cancers. Similarly, efforts focusing on alcohol use as a risk factor for cirrhosis of the liver, liver cancer and fetal alcohol syndrome rarely identify alcohol as a risk factor for oral cancers. However, recent intervention strategies for decreasing the use of tobacco products and alcohol bode well for reducing cancer incidence, including oral cancers. For example, many health institutions, businesses, airports, airlines, and schools have implemented smoke-free policies or provided only limited indoor space for smoking. Overall, there is a growing trend in the US to consider smoking socially unacceptable, especially among more highly educated people.[56]

Although not as prominent as anti-smoking activities, there has been an increase in recent years of educational efforts about self-protection from exposure to the sun by using sun and lip screens, hats, and other coverings. In addition, the public is being urged to obtain skin cancer examinations on a routine basis.

There is a clear trend to use public policy to help decrease or prevent behaviors that contribute to diseases.[57] For example, some states and communities have taken steps to prevent or reduce the availability of tobacco products or alcohol for underage youths. Approaches have included increasing taxes on tobacco products and enforcing laws prohibiting sales to minors.[58,59] Also, as a result of lawsuits against tobacco companies by states and individuals, there have been modifications of tobacco advertising, especially that directed at youth. Lawsuits and public policy initiatives frequently result from community action on the part of partnerships of organizations and individuals or coalitions.

On another level, health care professionals are being urged to train themselves in methods of tobacco cessation and to implement them in their practices.[60,61] Dolan et al. found that nearly 19% of dentists they surveyed reported they had completed formal training in tobacco use cessation, and over 19% felt very well or well prepared to assist patients in tobacco use cessation.[46] However, these efforts are not primarily directed at reducing oral cancers. In fact, oral cancers frequently are not mentioned as part of the rationale for discontinuing tobacco use. Still, dentists and physicians have the opportunity to make this point.

Several government and private agencies are urging the increased consumption of fruits and vegetables to help prevent cancers and other diseases. The National Cancer Institute's Five A Day program is a good example; it has encouraged many restaurants, schools and supermarkets to join in this effort. Because consuming of fruits and vegetables may provide protection against oral cancers, such initiatives may be beneficial.[62]

In addition, the Food and Drug Administration has changed its requirement for labeling. The agency's intent is to give the consumer a standardized and understandable approach to assess the nutrients in packaged foods. For example, alcohol is now labeled with a US government warning, a positive step although the labels, as are those on cigarettes, are inconspicuous and do not mention oral cancers.

C. Opportunities and Barriers to Progress

Knowledge, Opinions, and Practices of Health Care Providers

Education and Licensing

How clinicians practice is determined in large part by their training and education. For example, dental sealants (also a preventive procedure) are under used by practitioners. Yet, dental students who are well trained in, and expected to be competent in, the use of sealants do use them once in private practice.[63,64] Early and comprehensive exposure of undergraduate medical and dental students to cancer prevention methods is necessary to predispose them to provide oral cancer examinations effectively and routinely.[22,65-67] However, emphasis on prevention has never equaled emphasis on treatment in most U.S. dental and medical schools.[68] Furthermore, our knowledge of social and behavioral risk factors for disease has increased, but developing the skills to communicate this information to the public has not been addressed as well as it might be in most dental school curricula. In fact, after an upswing in the 1970s, emphasis on community health and prevention has declined.[69,70] Furthermore, preliminary findings from a recent study found that the oral cancer examination content of medical school curricula lacked comprehensiveness and consistency. In addition, medical schools do not require students to evaluate oral cancer signs and symptoms and do not train their students in thorough oral examination techniques.[71]

Although curricular guidelines exist for teaching undergraduate and graduate dental students how to provide an oral cancer examination,[72-75] there is no mechanism for enforcing them. Regulatory guidance for educational curricula is essential to ensure proficiency. These guidelines should include requirements for student clinicians to complete a specific number of oral cancer screening examinations; such a standard could serve as a catalyst for clinical licensing examination boards to assess competency in conducting oral cancer examinations.

State, regional, and national licensing dental board examinations all contain some questions related to oral cancer. No state dental board, however, requires that applicants perform an oral cancer examination to obtain a license to practice. Because some states already assess expertise in other content areas before granting a license, it is reasonable to insist that all licensing boards require practitioners to demonstrate their expertise in oral cancer examinations. In addition, licensed practitioners should be required for relicensure to complete a continuing education course in oral cancer. Although some dental schools have a rigorous cancer education curriculum,[66] the fact that students do not have to perform an oral cancer examination to obtain their license sends a message that the oral cancer examination is not as important to the health of the patient as are other procedures, such as the proper placement of an amalgam restoration. Overall, there are numerous opportunities for licensing agencies and dental schools to increase their focus on oral cancer prevention and early detection.

Although national survey information on oral cancers does not exist,[60] this type of information would be very helpful in identifying educational and training shortcomings and subsequently in developing and implementing educational and clinical interventions. Research is also needed to determine knowledge levels, opinions, and practices related to oral cancer and its prevention among other health care providers, including dental hygienists, nurses, nurse practitioners, and physician assistants. In addition, curricula and continuing education courses for these providers should be assessed relative to oral cancer prevention and early detection. Ultimately, the results of this research can be used to increase the volume of oral cancer examinations and thereby promote early detection of these diseases.

Continuing Medical and Dental Education

Continuing education courses provide opportunities to advance practitioners' knowledge and skills. Yet, relatively few continuing education courses for dentists deal with oral cancer.[76,77] Continuing education should be simple, valid, acceptable, and concise in order to enhance providers' attitudes and behaviors.[42] Although educational guides for both physicians and nurses regarding early detection of oral cancer are available, their use may be limited and their effectiveness has yet to be assessed.[39,78-80] An early study suggested that self-instructional courses are effective in enhancing awareness in early detection of oral cancer among medical and dental professionals;[81] but few have used this approach to date. However, the increased use of computers brings with it unique opportunities for self-study in pre-doctoral as well as continuing education.

Educational interventions to inform, train, and prepare health care professionals to diagnose and manage oral cancers properly are needed.[82] More recently another approach to providing continuing education—academic detailing—has been used to teach practitioners to change their prescribing practices.[83,84] Academic detailing, which is patterned after drug detailing, uses educational detailers who visit physicians in their offices or clinics and provide them with education. Currently, this method is not used to educate providers about oral cancer prevention and early detection. Ironically, one of the earliest uses of detailing to educate health care providers was the initiative decades ago to introduce dental practitioners to oral cytology testing as a means of detecting early oral cancer lesions.[85]

Sensitivity and Specificity of Oral Cancer Examination[1]

Theoretically, when health care providers understand the oral cancer exam procedure and know the clinical appearance of oral precancerous and cancerous lesions, they can routinely perform a systematic oral cancer examination for all their patients.[16,86-88] To date, however, no study to measure

[1] Sensitivity is the proportion of truly diseased persons in the screened population who are identified as diseased by the screening test, i.e., the probability of correctly diagnosing a case, or the true positive rate. Specificity is the proportion of truly nondiseased persons who are so identified by the screening test, i.e., the probability of correctly identifying a nondiseased person with a screening test, or the true negative rate. (From JM Last's *A Dictionary of Epidemiology*, Oxford Press, 1988).

the sensitivity and specificity of the oral cancer examination has been conducted in the United States. However, studies conducted in other countries have reported sensitivity and specificity rates ranging from 58-99%.[82,89-91] Jullien et al. suggest that sensitivity will be improved when providers are better trained to recognize specific signs and symptoms of early cancer and pre-cancer.[82] Furthermore, they suggest that if practitioners understand disease progression and regression, they will be more likely to detect disease in its early stages. Still, it would be helpful if one or more research teams would conduct studies to determine the sensitivity and specificity of oral cancer examinations in the US.

Adjunctive Screening Procedures and Tools

The lack of specific adjunctive examination tools such as the Papanicolaou (Pap) smear or vital staining (see Chapter V) may be barriers to the provision of routine oral cancer examinations. Sensitive and specific screening procedures that are reimbursable by third party payers need to be developed to encourage, motivate, and assist health care providers to increase their use of routine and effective oral examinations.[16] For example, toluidine blue rinse (vital staining) has been used in other countries as a diagnostic adjunct to oral cancer exams but not in the US. This easy and expeditious office procedure may be valuable in identifying lesions that are cancerous, although its potential for false positives warrants concern (see Chapter V).[92] Further research is needed to develop and test valid and reliable screening tools that could be identified as warranting insurance coverage.

Current Guidelines: A Lack of Consensus

Preventive care guidelines have been developed by governmental agencies, private enterprises, insurers, hospitals, academic centers and nearly 40 medical and dental societies.[93] Unfortunately, the lack of consensus among these guidelines not only fails to provide guidance to make informed clinical decisions but also may serve as a rationale for not providing oral cancer examinations. Because patients at highest risk for oral cancer are more likely to receive medical care than dental care, it is important that policies advocate the integration of oral cancer screening into routine health care. Most physician organizations do not consider recommendations for oral cancer within their periodic health examination guidelines. As shown in Table 2, the American Cancer Society, but not the US Preventive Task Force or the Canadian Task Force, recommends routine oral cancer examinations for adults.

Table 2:
Guidelines for Oral Cancer Screening Examinations

Organization	Routine	High-Risk Group Only	Screening Recommendations

American Cancer Society	yes	no	Examination for cancer of the oral region every 3 years for persons 21 years of age and older and annually for those 40 years of age and older.
US Preventive Task Force	no	yes	All patients should be counseled to discontinue the use of all forms of tobacco and to limit consumption of alcohol. Clinician should remain alert to signs and symptoms of oral cancer and premalignancy in persons who use tobacco or alcohol.
Canadian Task Force	no	yes	There is insufficient evidence to include or exclude screening for oral cancer from the periodic health examination in the general population. Only high-risk people warrant an annual oral examination by a physician or dentist.

According to Frame, who has played an important role in developing clinical preventive guidelines, "the incidence of the condition must be sufficient to justify the cost of screening."[96] This criterion was used to justify objections to guidelines advocating routine oral cancer examinations.[96,97] Yet, that oral cancer has a relatively low incidence and prevalence remains open to debate, as it reportedly often coexists with other upper aerodigestive cancers. Regardless, the examination requires only a few minutes and ultimately benefits many patients. Inasmuch as the scientific and economic justifications for preventive guidelines are still being defined, it seems inappropriate for current guidelines to deter the application of available, effective measures such as oral cancer examination. One encouraging piece of evidence comes from Prout et al., who found that early detection increased the number of *early* stage oral lesions found by physicians from 20% to 33% during a 3-4-year period.[98]

The US Preventive Services Task Force suggests that "All patients should be counseled to discontinue the use of all forms of tobacco and to limit consumption of alcohol."[99] In effect, the clinician must determine the patient's present and past use of alcohol and tobacco products. Thus, this recommendation tacitly assumes that practitioners routinely determine their patients' use of tobacco products and alcohol; it also assumes they are trained to counsel their patients.

Assessment of Patients Use of Tobacco and Alcohol

As previously noted, only 35% of US dentists ask their patients whether they smoke; even fewer ask about their use of smokeless tobacco.[46] Correspondingly, US and Canadian dental schools use health history forms that are often severely deficient in determining a patient's high risk behaviors associated with oral cancer.[100] Nearly 25% of the schools do not include any questions on tobacco and alcohol

use and 37% fail to include both tobacco and alcohol questions on these forms. There is also extensive variability in the questions about the history, quantity, duration, and types of tobacco or alcohol use.

A recent study of health history forms used in of dental hygiene schools showed that 36% of the schools failed to ask about alcohol and tobacco use.[101] Finally, a survey of 126 US medical schools found that the topic least likely to be covered in their cancer prevention curriculum was prevention and cessation of smoking.[102]

Health history forms used in medical and dental schools are critical documents not only to determine patients' health risk factors but also as teaching tools to influence future practitioner behaviors.[103] Thus, in assessing an individual's risks, a health history form should ask about tobacco, alcohol, and sunscreen use.

In addition to using health history forms, clinicians must engage directly those of their patients who smoke. Indeed, Fiore has suggested that health care practitioners practice "bad medicine" when they do not address tobacco use in a timely and appropriate fashion with these patients.[104]

Educational Materials for Providers

Educational materials about oral cancer and related examination techniques recently developed for health care providers have included an overview of the literature on oral cancers, a video, leaflets, and a poster that shows how to perform an oral cancer examination. However, to our knowledge, a survey has not been conducted to determine what is available for US providers and to systematically assess whether the content of available materials is valid and effective. Also, although there are many educational materials for health care providers on how to assist their patients to become tobacco-free, these materials do not always specifically link use of tobacco products with oral cancers.

Knowledge, Opinions, and Practices of The Public

Oral Cancer Examinations

Just as health care providers need basic knowledge and skills to complete an oral cancer examination and to assess the risk behaviors of their patients, the public has its own needs for knowledge about oral cancers. Specifically, the public needs to know the risk factors for these diseases and their signs and symptoms. Because some oral cancer risk factors may be synergistic, eliminating just one risk factor might produce very substantial benefits, as its absence might greatly affect the overall risk for these cancers (see Chapter III).[101] In addition, the public needs to know there is an oral cancer examination and what it entails.[82,102] With this information, patients can assess whether their practitioners are routinely providing a comprehensive examination and, if not, to request that they do so.

Unfortunately, relatively little attention has been paid to educating the general public about oral cancer. Yet, without accurate and appropriate information, members of the public can neither make nor be expected to make informed decisions about their own health, including the need to seek oral cancer examinations.[21] Unfortunately, a lack of knowledge can result in an individual's simply ignoring a sign or symptom of oral cancer, a response that could have grave consequences. Research suggests that knowledge is important relative to cancer screening practices. Indeed, studies of other cancers have shown that a lower level of knowledge tends to increase fatalistic attitudes toward cancer and other diseases and fosters misinformation. This lack of information can lead to delay in seeking care for symptoms[50] or to foregoing screening examinations.[51] In fact, one study found that most oral cancer patients had delayed seeking professional advice for more than 3 months after becoming aware of an oral sign or symptom.[103] Still, simply "holding knowledge" about a risk factor does not translate into behavior change, but having appropriate knowledge enables one to make an intelligent decision upon which to act.[18,20]

Many people do not practice preventive procedures, not by informed choice, but because they may never have been taught about them, may not have necessary information-seeking skills, or may not have access to the information.[18,102] For example, the two most common reasons women give for never having had a mammogram or a Pap smear are the following: (1) they did not know they needed it (lack of knowledge); and (2) their physician had not recommended the procedure.[51-53] Yet, the public has the right to this information for its self-protection.

Access to Health Services

Unfortunately, few systems are in place to ensure the provision of routine (annual) oral cancer screening examinations. Not surprisingly, mortality rates from oral cancer are high in populations with poor access to the health care system.[5,8,32,104,105] Groups with low utilization of the medical (non-dental) care system include those who have low incomes, lack private insurance, have less than a high school education, are 65 years of age or older, or are members of a minority group.[106] Access to oral

health care is even more restrictive.[8] Although Medicare reimburses the treatment of oral cancers in a hospital setting, it does not cover routine or preventive oral health care, including examinations for oral cancers. Furthermore, Medicaid programs do not reimburse adult oral health care, thereby limiting access for low socioeconomic groups.

Persons of low socioeconomic status are more likely to engage in high-risk behaviors, such as tobacco or alcohol use,[56,107] a fact that may explain some of their poor performance on oral cancer indicators. However, another group with below-average use of oral health services, the edentulous elderly, were found in one study to have a higher oral cancer risk independent of tobacco and alcohol use.[108]

Opportunities should be explored to develop new strategies for providing oral cancer examinations. For example, oral cancer exams could be provided by physicians in conjunction with other cancer screening procedures. In addition, these exams might be offered in hospital emergency departments to those persons who go there for routine primary care. In addition, non-medical personnel in health-related programs who work with individuals who are at high risk can be trained to provide screening exams and to make follow-up referrals when necessary.

Educational Materials for the Public

Relatively few oral cancer educational materials have been produced for the public, far less than the plethora of materials on toothbrushing, flossing, and the need for dental visits. Surveys are needed to determine what educational materials are available for specific target groups and to assess their accuracy, comprehensiveness, reading level, and acceptability.

A review of health education textbooks for students from kindergarten through 12th grade found that the oral cancer coverage was uneven, misleading, sometimes incorrect, but most often omitted altogether.[109] Most of the content about oral cancer dealt with the use of chewing tobacco. Both the lack of content and the incorrect information in health education textbooks may contribute to the public's overall lack of knowledge about oral cancers. Clearly, it is imperative to include correct material about prevention of oral cancers in health textbooks.

Another priority for public education concerns the labeling of alcohol and tobacco products. Although placing warning messages on alcohol and tobacco products is commendable, currently the messages can barely be distinguished from the balance of the label. Warning messages on electrical appliances such as hair dryers are far more obvious. Warning messages need to be clearly visible and distinct from the rest of the label. Furthermore, the content of the messages should be much stronger and clearer.[55]

Self-examination

A first line of defense against oral cancer is an orofacial self-examination.[110,111] A self-examination can help individuals become more aware of their own bodies and involve them in monitoring their own

health. As has happened with other self-examination procedures, the public can be educated to perform oral cancer self-examinations. Although they should not take the place of a professional oral examination, self-examinations can be a secondary preventive technique to detect early lip and mouth lesions.[110,111] The examination includes intraoral and extraoral observations and palpation of the head and neck region; it requires only a few minutes to complete.[110] However, because signs are often difficult to recognize and symptoms may be minimal, professional examinations are still of primary importance. Studies of the effectiveness of oral cancer self-examinations and the public's awareness and use of this tool are needed.

In summary, oral cancer is a disease that frequently has been given low priority by both health care providers and the public.[112] Furthermore, although there is currently great interest in exploring therapeutic modalities for oral cancer, scant attention has been paid to its prevention, early detection, and control. Although there are numerous barriers to prevention and early detection of oral cancers in the US, none is insurmountable. Let us consider the barriers to be opportunities to change the behaviors and practices of health care providers and the public. If we can make these changes, we can achieve the oral health objectives in *Healthy People 2000*.

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